Research Administration
REPORT FORM

FINAL REPORT

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2. Title - FNAS UV and X-Rays in Microflares
3. Agency - MSFC/NASA
4. Agency Contract Number - NAG8-171
5. Date of Report - August 13, 1991
6. Center/College - CSPAR
7. Center Report Number - CSPAR 91-04
8. Subject Area - UV and X-Rays in Microflares

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Final Report

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POP: 08/16/90 - 08/15/91

George C. Marshall Space Flight Center
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August 1991

August 10, 1991

ANNUAL REPORT

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The research carried during the past year was very successful and led to very important new results, to the publication of several papers, and to the development of the methods for our next paper of the series. Parts of the research were carried in collaboration with a number of investigators, the elaboration the data processing and methods of analysis were carried using MSFC data from the UVSP and HXIS instruments on board SMM. Complementary data from H alpha and magnetograms were also used, and some active regions were selected for study because of the availability of all this complementary data.

The first of the papers was published in Solar Phys., **134**, 145-169 (1991, attached), and was entitled "Flaring Arches. III. The Subflare of June 27, 1980, and its related extended arch". I This paper is the third of a series (I was third author in the second paper), was worked in collaboration with Drs. Svestka, Farnik, and Tang. The paper points some new aspects displayed by the flaring arches associated to, at least, many microflares. These aspects have profound consequences in the modeling and prompt for a full revision of the commonly used assumptions.

A second related paper was elaborated in collaboration with Drs. Schmieder and Tandberg-Hanssen. This paper will be published in Astron. Ap. (preprint attached), and was entitled "A Microflare-Related Activation of Filament Observed in H alpha and C IV Lines". This paper presents a detailed analysis of H-alpha and C IV data on a microflare and describes how a local energy release process is triggered by the microflare. This kind of phenomena has not been previously well studied and shows a complex interaction of magnetic fields, heating, and flows of material at various temperatures.

Another paper is in an advanced stage of completion. This paper will be submitted to Solar Phys., and is being currently finished in collaboration with Drs. Porter and Simnett. This paper studies the compared intensities of C IV and X-ray emission for a number of microflares of a range from subflare down into the weaker UV events. We find the surprising result that although the brightest events seem to be significantly correlated in both space and time, the weaker microflares seem to show good spatial correlation but progressively (as the intensity decreases) less temporal correlation between the UV and X-Ray emissions.

In summary, our research produced and is currently producing new important results, opened new research topics, and gave basic fundamental constraints for realistic theoretical modeling.

Juan M. Fontenla

1 reprint and 1 preprint attached